DEPOT AND ITEM LEVEL BUSINESS CASE ANALYSIS (BCA) & TOOL

Bernard Price

Certified Professional Logistician

05/25/17

Depot Level Best Value Analysis (BVA)

- **Source of Repair Analysis (SORA) to Determine If Items Should be Repaired by Contractor Depot, Organic Depot or Use Other Options**
- **Compares Net Present Value Cost of Each Alternative in Areas where Costs Differ to Achieve the Same Ao Performance**
- **Typically Determines Whether Organic Repair Recurring Savings Will Exceed Investment Costs Necessary to Have Organic Repair**

Potential Depot Level BVA Initial Cost Differences

- **Initial Spares (if new system & depot level logistics response times are different)**

- **Special TMDE, Test Fixtures/Modules/Software & Test Program Sets/Interconnect Devices**

- **Drawings, Repair Documentation & Cataloging**

Potential Depot Level BVA Recurring Cost Differences

- **Contractor & Organic Depot Repair Costs**
- **Common TMDE Use & Special TMDE/TPS Maintenance**
- **Inventory Holding Costs (if initial sparing differences)**
- **Replenishment Spares (if washout rate differences)**
- **Transportation & Handling Costs**
- **Additional Integrated Materiel Mgt Support**

Types of PBL Business Case Analysis

- **Best Value Analysis – Rates & Weights Multiple Factors to Evaluate the Benefits & Cost of Each Alternative (Source Selections & Pre-MS B)**

- **Logistics Support Optimization Analyses –Lowest Net Present Value Total Cost among Support Alternatives to Achieve the Same Ao (Pre-MS C)**

- **Economic Analysis - Evaluates the Return on Investment of an Alternative to Status Quo (After Design Frozen or**

True Business Case Analysis

- **Sometimes Goes Beyond an Economic Analysis**
  - **Generally Multiple Alternatives**
  - **May Optimize Among Alternatives**

- **Sometimes Goes Beyond a Best Value Analysis (BVA)**
  - **When a Larger Investment Reduces Recurring Costs**
  - **Considers Return on Investment (ROI) and Amount of Investment in the Decision Process**
  - **Example – Depot & Item Level SORA**

- **Sometimes a BVA is a Business Case Analysis**
  - **When a Smaller Investment Cost Reduces Recurring Costs to Meet Ao Performance Goal**

Depot & Item Level Analysis Tool

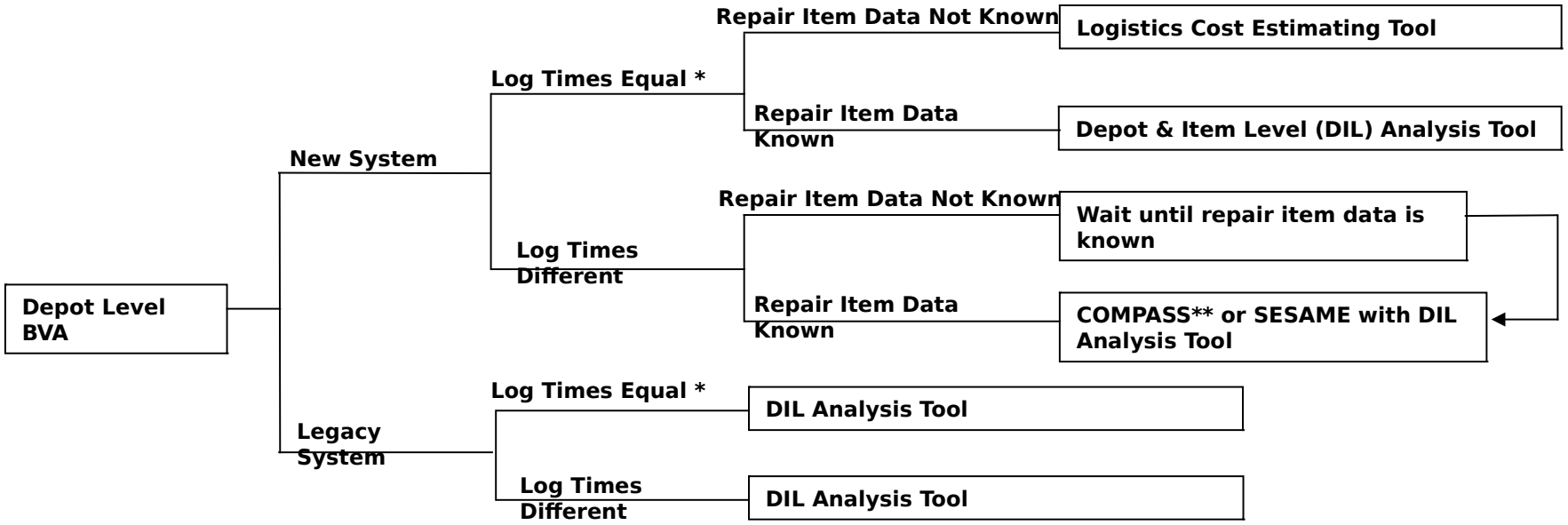
- **Depot Level Source of Repair Analysis at Both the Individual Item and Equipment Level**

- **Determines Whether Organic Depot, Contractor Depot or Throwaway is Least Cost for Each Item**

- **Optimal Item Level Mix plus Equipment Level Costs are Added & Compared to Determine if Mixed Repair is Still Less Than All Contractor or All Organic Repair**

- **Public-Private Partnering Outcome Yields ROI of Each Item and Item Level Priority Ranking by Savings**

Depot Level Source of Repair Analysis Modeling Decision Tree


Depot Level BVA
New System
Log Times Equal *
Repair Item Data Not Known
Logistics Cost Estimating Tool
Repair Item Data Known
Depot & Item Level (DIL) Analysis Tool
Log Times Different
Repair Item Data Not Known
Wait until repair item data is known
Repair Item Data Known
COMPASS** or SESAME with DIL Analysis Tool
Legacy System
Log Times Equal *
DIL Analysis Tool
Log Times Different
DIL Analysis Tool

*** Equal Logistics Times consist of the Same Order & Ship Times from Depot to the Soldier, Same Retrograde Shipment Times from the Soldier to the Depot, and Same Depot Turnaround Times from Receipt to Depot Stock**

**** COMPASS Standalone Run Can Compare Contractor Repair & Return of Same Serial Number to Government Depot Use of Wholesale Supply where Repairs Replenish Wholesale Supply**

BEST VALUE ANALYSIS (BVA) & BUSINESS CASE ANALYSIS (BCA) TO BLOCK I OF A TERMINAL

- **Applied Depot & Item Level Analysis Spreadsheet Tool**
- **Analyzed Only Areas of Cost Differences**

05/25/17

Total Organic Support Investment Costs

- **$ 2.035M Cost for Organic Depot Package**
  - **Initial Setup Allocated to System - $0.750M**
    - **$0.575M for Radio Portion**
    - **$0.175M for Rest of Terminal Block 1**
  - **$1.285M Allocated to Item Level Investment Costs**

Detailed Organic Investment Costs

ITEM	Tech Doc $500,000	Software	Training	Test Fixtures	Program Office	Other Than Tech Doc	Total Cost
Terminal Initial Setup				$75,000	$100,000	$175,000	$175,000
LRU							
Radio	$0	$500,000	$25,000	$50,000		$575,000	$575,000
Mast Assembly	$0					$0	$0
Antenna, DF	$75,534					$0	$75,534
Antenna Mo	$13,815					$0	$13,815
LPU	$13,610		$50,000			$50,000	$63,610
CSIU	$30,140		$50,000			$50,000	$80,140
PSIU	$38,915	$5,000	$50,000			$55,000	$93,915
SCU	$18,005	$5,000	$50,000			$55,000	$73,005
DCB	$19,339					$0	$19,339
Tango Box	$13,230					$0	$13,230
T-FOG Sensor	$49,873					$0	$49,873
Odometer Sensor	$2,037					$0	$2,037
W1 Cable	$12,651					$0	$12,651
MA715A	$6,664		$ 25,000	$12,500		$37,500	$44,164
MA-445C	$29,629		$ 75,000	$12,500		$87,500	$117,129
Display	$10,177					$0	$10,177
SRU							
Panel, Control	$31,808		$75,000			$75,000	$106,808
Dual Processor	$7,466		$50,000			$50,000	$57,466
Demodulator	$16,464		$50,000			$50,000	$66,464
HF Receiver	$15,261		$75,000			$75,000	$90,261
VHF Receiver	$22,104		$75,000			$75,000	$97,104
Monitor Receiver	$28,583		$75,000			$75,000	$103,583
RF Distribution	$7,819		$50,000			$50,000	$57,819
Mast Motor	$15,333					$0	$15,333
Winch	$21,542					$0	$21,542
	$500,000	$510,000	$775,000	$150,000	$100,000	**$1,535,000**	**$2,035,000**

Major Recurring Cost Drivers

- **Organic Depot Labor Rate = $63.97/Hour**
- **Contractor Repair Labor Rate = $131.87/Hour**
- **Density = 83 Systems & 76 Systems Minimum**
- **Item Life Cycle Minus 3 Years of Interim Contractor Support**

BVA ITEM LEVEL RESULTS
Radio (83 Systems) Cost Differences Only

		Organic Depot Alternative		Contractor Depot Alternative		Optimized Mixed Organic and Contractor Alternative	
	Description	Life Cycle Discounted Cost	Repair / Throwaway Policy	Life Cycle Discounted Cost	Repair / Throwaway Policy	Life Cycle Discounted Cost	Alternative
1	Front Panel	$214,916	Repair	$222,858	Repair	$214,916	Organic Depot
2	Dual Processor	$148,790	Repair	$188,258	Repair	$148,790	Organic Depot
3	Demodulator	$173,759	Repair	$221,181	Repair	$173,759	Organic Depot
4	HF Receiver	$252,222	Repair	$333,873	Repair	$252,222	Organic Depot
5	VHF Receiver	$325,853	Repair	$471,551	Repair	$325,853	Organic Depot
6	RF Distribution	$133,342	Repair	$155,685	Repair	$133,342	Organic Depot
7	Monitor Receiver	$592,597	Repair	$1,008,072	Repair	$592,597	Organic Depot
	Initial Setup Cost	$575,000		$0		$575,000	
	IMMC	$0		$0		$0	
	TOTAL	**$2,416,479**		**$2,601,478**		**$2,416,479**	

BVA ITEM LEVEL RESULTS
All Terminal Items (83 Systems) Cost Differences

		Organic Depot Alternative		Contractor Depot Alternative		Optimized Mixed Organic and Contractor Alternative	
	Description	Life Cycle Discounted Cost	Repair / Throwaway Policy	Life Cycle Discounted Cost	Repair / Throwaway Policy	Life Cycle Discounted Cost	Alternative
1	Front Panel	$214,916	Repair	$222,858	Repair	$214,916	Organic Depot
2	Winch 240DD	$54,920	Repair	$68,806	Repair	$54,920	Organic Depot
3	Dual Processor	$148,790	Repair	$188,258	Repair	$148,790	Organic Depot
4	Demodulator	$173,759	Repair	$221,181	Repair	$173,759	Organic Depot
5	HF Receiver	$252,222	Repair	$333,873	Repair	$252,222	Organic Depot
6	VHF Receiver	$325,853	Repair	$471,551	Repair	$325,853	Organic Depot
7	RF Distribution	$133,342	Repair	$155,685	Repair	$133,342	Organic Depot
8	Mast Motor	$43,168	Repair	$57,379	Repair	$43,168	Organic Depot
9	Monitor Rcvr	$592,597	Repair	$1,008,072	Repair	$592,597	Organic Depot
10	Ant DF	$117,248	Repair	$85,991	Repair	$85,991	Contractor Depot
11	Ant Mon	$18,592	Repair	$9,847	Repair	$9,847	Contractor Depot
12	LPU	$47,612	Throwaway	$1,348	Repair	$1,348	Contractor Depot
13	CSIU	$111,999	Repair	$65,676	Repair	$65,676	Contractor Depot
14	PSIU	$117,056	Repair	$47,704	Repair	$47,704	Contractor Depot
15	SCU	$86,800	Repair	$28,438	Repair	$28,438	Contractor Depot
16	DCB	$90,378	Repair	$146,442	Repair	$90,378	Organic Depot
17	Tango Box	$52,369	Repair	$80,682	Repair	$52,369	Organic Depot
18	Tfogs	$158,946	Repair	$224,846	Repair	$158,946	Organic Depot
19	OdomeS	$261	Throwaway	$261	Throwaway	$261	Throwaway
20	W1 Cable	$75,276	Repair	$129,098	Repair	$75,276	Organic Depot
21	MA715A	$62,304	Repair	$37,394	Repair	$37,394	Contractor Depot
22	MA445C	$275,545	Repair	$326,565	Repair	$275,545	Organic Depot
23	Display	$50,691	Repair	$83,517	Repair	$50,691	Organic Depot
	Initial Setup Cost	$750,000		$0		$750,000	
	IMMC	$0		$0		$0	
	TOTAL	**$3,954,644**		**$3,995,473**		**$3,669,431**	

BVA ITEM LEVEL RESULTS
All Terminal Items (76 Systems) Cost Differences

		Organic Depot Alternative		Contractor Depot Alternative		Optimized Mixed Organic and Contractor Alternative	
	Description	Life Cycle Discounted Cost	Repair / Throwaway Policy	Life Cycle Discounted Cost	Repair / Throwaway Policy	Life Cycle Discounted Cost	Alternative
1	Front Panel	$205,799	Repair	$204,063	Repair	$204,063	Contractor Depot
2	Winch 240DD	$52,105	Repair	$63,003	Repair	$52,105	Organic Depot
3	Dual Processor	$141,088	Repair	$172,381	Repair	$141,088	Organic Depot
4	Demodulator	$164,710	Repair	$202,528	Repair	$164,710	Organic Depot
5	HF Receiver	$238,563	Repair	$305,715	Repair	$238,563	Organic Depot
6	VHF Receiver	$306,561	Repair	$431,781	Repair	$306,561	Organic Depot
7	RF Distribution	$126,972	Repair	$142,555	Repair	$126,972	Organic Depot
8	Mast Motor	$40,820	Repair	$52,540	Repair	$40,820	Organic Depot
9	Monitor Rcvr	$551,355	Repair	$923,053	Repair	$551,355	Organic Depot
10	Ant DF	$113,730	Repair	$78,739	Repair	$78,739	Contractor Depot
11	Ant Mon	$18,189	Repair	$9,016	Repair	$9,016	Contractor Depot
12	LPU	$43,596	Throwaway	$1,235	Repair	$1,235	Contractor Depot
13	CSIU	$109,312	Repair	$60,137	Repair	$60,137	Contractor Depot
14	PSIU	$115,105	Repair	$43,681	Repair	$43,681	Contractor Depot
15	SCU	$85,637	Repair	$26,039	Repair	$26,039	Contractor Depot
16	DCB	$84,387	Repair	$134,092	Repair	$84,387	Organic Depot
17	Tango Box	$49,068	Repair	$73,878	Repair	$49,068	Organic Depot
18	Tfogs	$149,747	Repair	$205,883	Repair	$149,747	Organic Depot
19	OdomeS	$239	Throwaway	$239	Throwaway	$239	Throwaway
20	W1 Cable	$69,995	Repair	$118,210	Repair	$69,995	Organic Depot
21	MA715A	$60,774	Repair	$34,240	Repair	$34,240	Contractor Depot
22	MA445C	$262,185	Repair	$299,023	Repair	$262,185	Organic Depot
23	Display	$47,274	Repair	$76,474	Repair	$47,274	Organic Depot
	Initial Setup Cost	$750,000		$0		$750,000	
	IMMC	$0		$0		$0	
	TOTAL	**$3,787,210**		**$3,658,505**		**$3,492,219**	

BVA RECOMMENDATIONS (Without Considering ROI)

RECOMMENDATIONS WITHOUT CONSIDERING ROI				
	Recommended Organic Depot Repair List	Repair Outcome Differed On Analysis Runs	Recommended Contractor Repair List	Recommended Throwaway List
9	Monitor Receiver			
6	VHF Receiver			
5	HF Receiver			
18	T Fog Sensor			
16	Data Control Box			
20	W1 Cable			
22	MA445C Antenna			
4	Demodulator			
3	Dual Processor			
23	Display			
17	Tango Box			
7	RF Distribution			
8	Mast Motor			
2	Winch 240DD			
1		Front Panel		
11			Antenna Monitor	
21			MA715A Antenna	
10			Antenna DF	
12			LPU	
13			CSIU	
15			SCU	
14			PSIU	
19				Odometer Sensor

BCA SUMMARY – SAVINGS / ROI

Radio (83 Systems) Cost Differences Only

		Organic Depot Alternative		Contractor Depot Alternative		Savings / Return on Investment					
	Description	Life Cycle Discounted Cost	Repair / Throwaway Policy	Life Cycle Discounted Cost	Repair / Throwaway Policy	Cost Differences ($)	Cost Differences (%)	Organic Savings	Organic ROI	Contractor Savings	Contractor ROI
7	Monitor Receiver	$592,597	Repair	$1,008,072	Repair	$415,474	41.2%	$415,474	5.01	$0	N/A
5	VHF Receiver	$325,853	Repair	$471,551	Repair	$145,698	30.9%	$145,698	2.50	$0	N/A
4	HF Receiver	$252,222	Repair	$333,873	Repair	$81,651	24.5%	$81,651	1.90	$0	N/A
3	Demodulator	$173,759	Repair	$221,181	Repair	$47,423	21.4%	$47,423	1.71	$0	N/A
2	Dual Processor	$148,790	Repair	$188,258	Repair	$39,468	21.0%	$39,468	1.69	$0	N/A
6	RF Distribution	$133,342	Repair	$155,685	Repair	$22,343	14.4%	$22,343	1.39	$0	N/A
1	Front Panel	$214,916	Repair	$222,858	Repair	$7,942	3.6%	$7,942	1.07	$0	N/A
	SUB-TOTAL							**$759,998**		**$0**	
	Initial Setup Cost							-$575,000		$0	
	IMMC							$0		$0	
	TOTAL							**$184,998**	**1.16**	**$0**	

BCA SUMMARY – SAVINGS / ROI

All Terminal Items (83 Systems) Excluding the Radio & With Cost Differences Only

		Organic Depot Alternative		Contractor Depot Alternative		Savings / Return on Investment					
	Description	Life Cycle Discounted Cost	Repair / Throwaway Policy	Life Cycle Discounted Cost	Repair / Throwaway Policy	Cost Differences ($)	Cost Differences (%)	Organic Savings	Organic ROI	Contractor Savings	Contractor ROI
11	Tfogs	$158,946	Repair	$224,846	Repair	$65,901	29.3%	$65,901	2.32	$0	N/A
9	DCB	$90,378	Repair	$146,442	Repair	$56,064	38.3%	$56,064	3.90	$0	N/A
13	W1 Cable	$75,276	Repair	$129,098	Repair	$53,822	41.7%	$53,822	5.25	$0	N/A
15	MA445C	$275,545	Repair	$326,565	Repair	$51,020	15.6%	$51,020	1.44	$0	N/A
16	Display	$50,691	Repair	$83,517	Repair	$32,826	39.3%	$32,826	4.23	$0	N/A
10	Tango Box	$52,369	Repair	$80,682	Repair	$28,313	35.1%	$28,313	3.14	$0	N/A
2	Mast Motor	$43,168	Repair	$57,379	Repair	$14,212	24.8%	$14,212	1.93	$0	N/A
1	Winch 240DD	$54,920	Repair	$68,806	Repair	$13,886	20.2%	$13,886	1.64	$0	N/A
12	OdomeS	$261	Throwaway	$261	Throwaway	$0	0.0%	$0	N/A	$0	N/A
4	Ant Mon	$18,592	Repair	$9,847	Repair	-$8,745	-88.8%	$0	N/A	$8,745	Infinite
14	MA715A	$62,304	Repair	$37,394	Repair	-$24,910	-66.6%	$0	N/A	$24,910	Infinite
3	Ant DF	$117,248	Repair	$85,991	Repair	-$31,257	-36.3%	$0	N/A	$31,257	Infinite
5	LPU	$47,612	Throwaway	$1,348	Repair	-$46,263	-3430.8%	$0	N/A	$46,263	Infinite
6	CSIU	$111,999	Repair	$65,676	Repair	-$46,323	-70.5%	$0	N/A	$46,323	Infinite
8	SCU	$86,800	Repair	$28,438	Repair	-$58,362	-205.2%	$0	N/A	$58,362	Infinite
7	PSIU	$117,056	Repair	$47,704	Repair	-$69,352	-145.4%	$0	N/A	$69,352	Infinite
	SUB-TOTAL							**$316,043**		**$285,213**	
	Initial Setup Cost							-$175,000		$0	
	IMMC							$0		$0	
	TOTAL							**$141,043**	**1.54**	**$285,213**	

BCA SUMMARY – SAVINGS / ROI

All Terminal Items (83 Systems) Excluding

Low ROI with High Investment Costs

		Organic Depot Alternative		Contractor Depot Alternative		Savings / Return on Investment					
	Description	Life Cycle Discounted Cost	Repair / Throwaway Policy	Life Cycle Discounted Cost	Repair / Throwaway Policy	Cost Differences ($)	Cost Differences (%)	Organic Savings	Organic ROI	Contractor Savings	Contractor ROI
5	Tfogs	$158,946	Repair	$224,846	Repair	$65,901	29.3%	$65,901	2.32	$0	N/A
3	DCB	$90,378	Repair	$146,442	Repair	$56,064	38.3%	$56,064	3.90	$0	N/A
6	W1 Cable	$75,276	Repair	$129,098	Repair	$53,822	41.7%	$53,822	5.25	$0	N/A
7	Display	$50,691	Repair	$83,517	Repair	$32,826	39.3%	$32,826	4.23	$0	N/A
4	Tango Box	$52,369	Repair	$80,682	Repair	$28,313	35.1%	$28,313	3.14	$0	N/A
2	Mast Motor	$43,168	Repair	$57,379	Repair	$14,212	24.8%	$14,212	1.93	$0	N/A
1	Winch 240DD	$54,920	Repair	$68,806	Repair	$13,886	20.2%	$13,886	1.64	$0	N/A
	SUB-TOTAL							**$265,024**		**$0**	
	Initial Setup Cost							-$175,000		$0	
	IMMC							$0		$0	
	TOTAL							**$90,024**	**1.63**	**$0**	

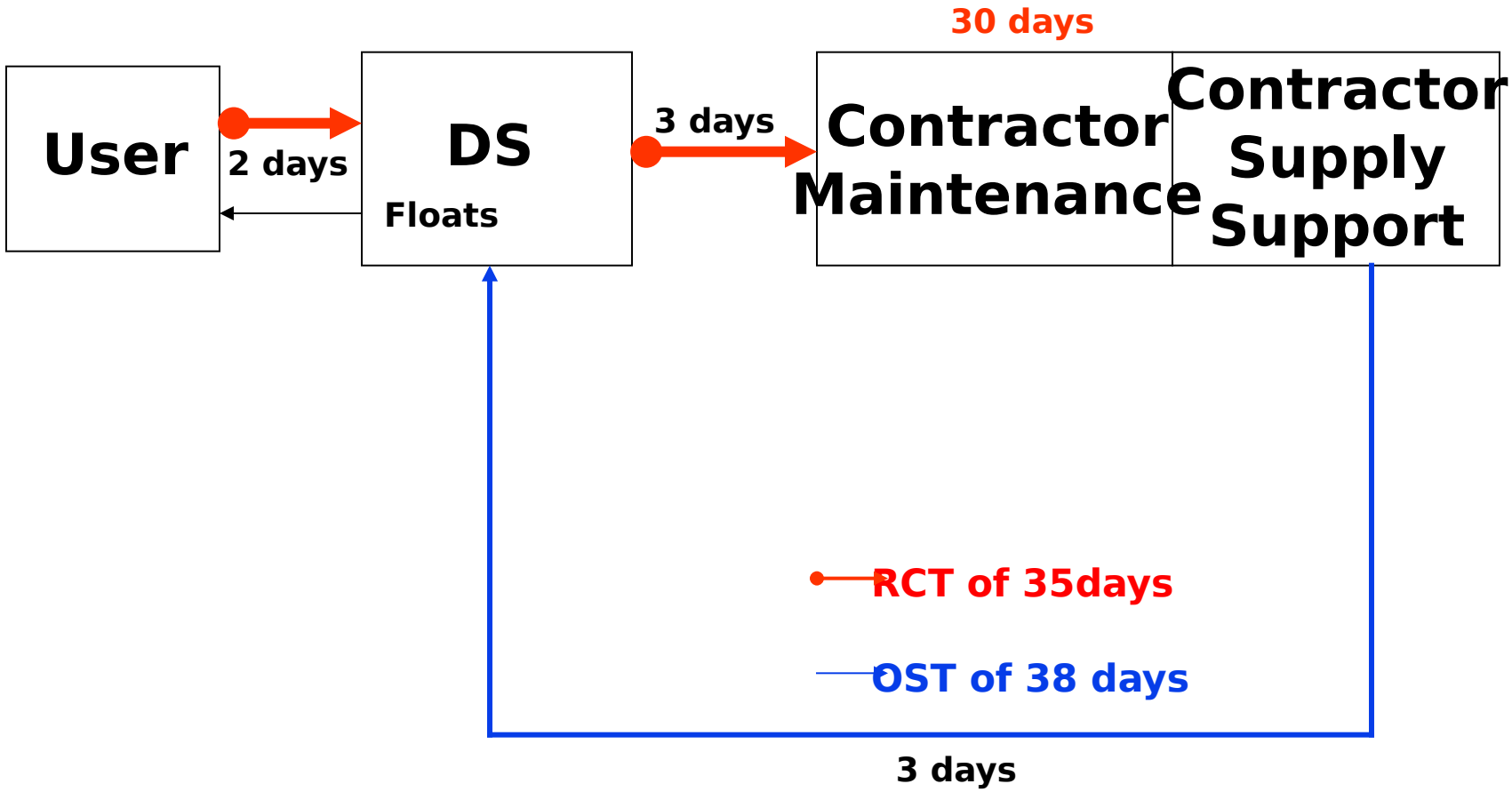
BCA RECOMMENDATIONS FOR 83 SYSTEMS (Considering ROI)

		RECOMMENDATIONS	
	CONSIDERING ROI AND INVESTMENT COSTS		
	Recommended Organic Depot Repair List	Recommended Contractor Repair List	Recommended Throwaway List
18	T Fog Sensor		
16	Data Control Box		
20	W1 Cable		
23	Display		
17	Tango Box		
8	Mast Motor		
2	Winch 240DD		
9		Monitor Receiver	
6		VHF Receiver	
5		HF Receiver	
22		MA445C Antenna	
4		Demodulator	
3		Dual Processor	
7		RF Distribution	
1		Front Panel	
11		Antenna Monitor	
21		MA715A Antenna	
10		Antenna DF	
12		LPU	
13		CSIU	
15		SCU	
14		PSIU	
19			Odometer Sensor

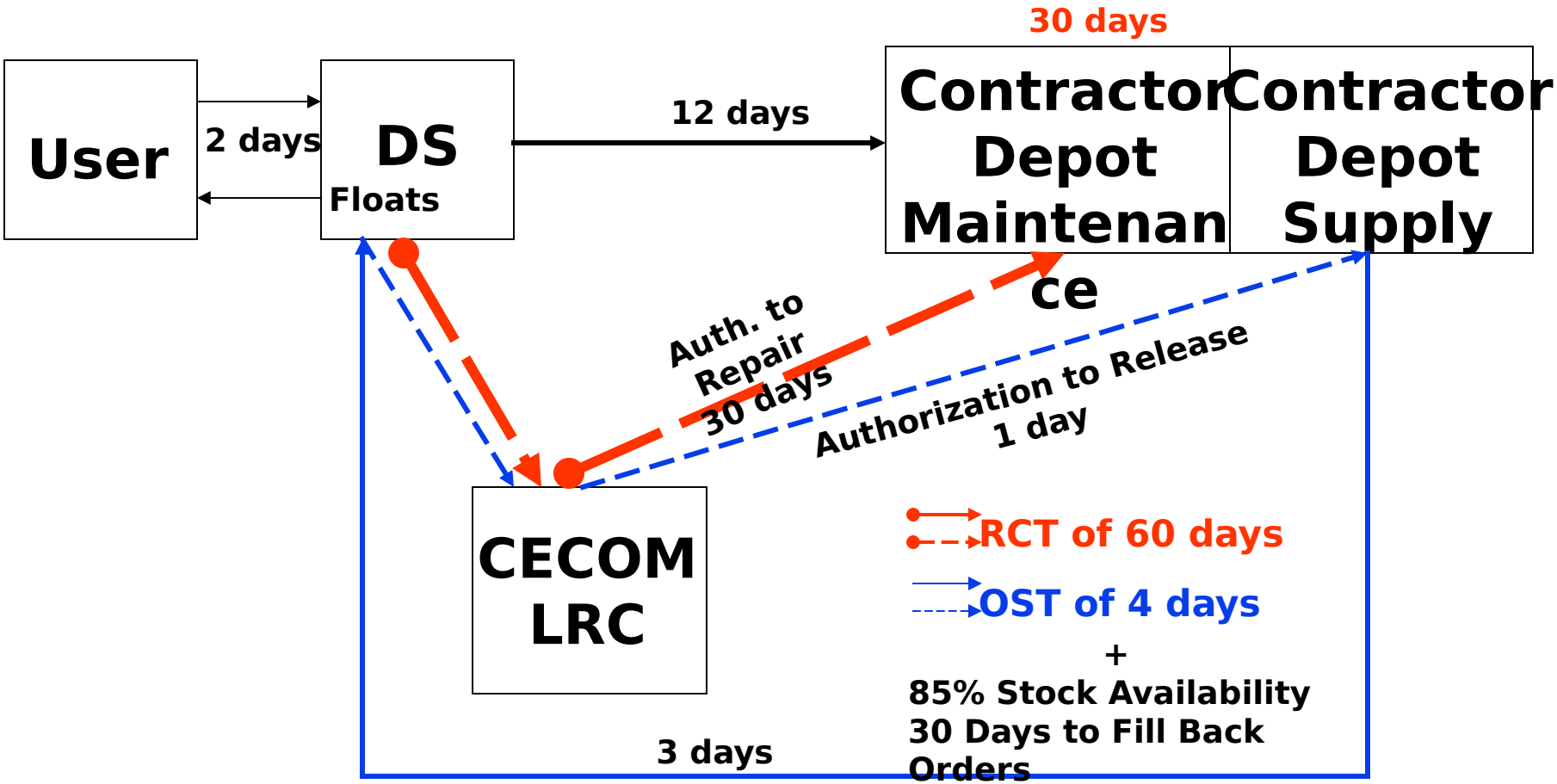
Radio R/T PBL Analysis

- **Looking at Possibility to Transition Radios to Organic Support**
- **4.5% of Radios Presently Bought are DS Spares**
- **Organic Support will Need Wholesale Level Spares**
- **Want Radio Sparing Mix to Yield Same Ao Presently Attaining Under Contract Terms**
- **Applied SESAME Model to Evaluate Ao & Spares**
- **2 Years of Radio Return Data & Radio Time Phased Deployment Yielded Demand Rate**
- **3% Consumption Rate from Washouts/Non-Returns**

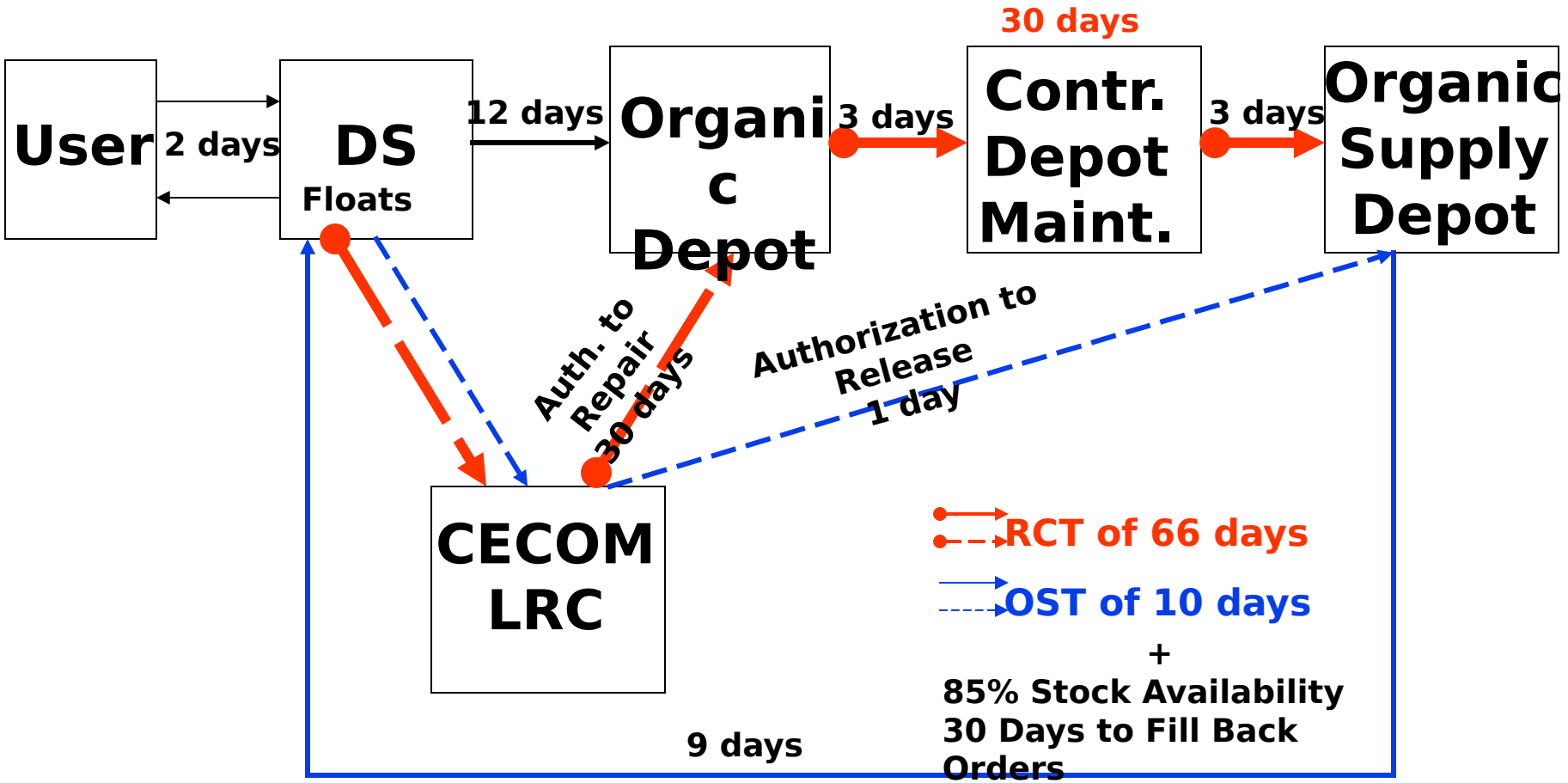
RADIO STATUS QUO
REPAIR & RETURN OF SAME ITEM



STANDARD SUPPORT PROCESS
ALTERNATIVE 1 – Supply at Contractor



STANDARD SUPPORT PROCESS
ALTERNATIVE 2 – Organic Depot Supply



Fielding of Radios

UNIT	Total Qty	Total Floats	Fielded	#Units	Avg Qty	Avg Floats	Year #
4th ID	1441	74	1367	5	273	15	1
SBCT	720	28	692	1	692	28	1
1st CAV	1717	81	1636	5	327	16	1
SBCT2	520	28	492	1	492	28	1
3rd ID	620	25	595	5	119	5	1
Test/Integr	665	27	638	1	638	27	1
3-265 FLNG	193	8	185	1	185	8	2
3 ACR	508	20	488	5	98	4	2
SBCT3	720	26	694	1	694	26	2
ARNG	23	1	22	1	22	1	3
III Corps	932	40	892	5	178	8	3
SBCT5	720	26	694	1	694	26	4
SBCT6	720	29	691	1	691	29	3
Totals	9499	413	9086	33	275	13	

Alt. 2 Sparing Recommendations

UNIT	Total Qty	Total Floats	Fielded	#Units	Avg Qty	Avg Floats	Year #	DS Rec	Total Rec	Total Diff	Depot Qty
4th ID	1441	74	1367	5	273	15	1	5	25	49	
SBCT	720	28	692	1	692	28	1	8	8	20	
1st CAV	1717	81	1636	5	327	16	1	5	25	56	
SBCT2	520	28	492	1	492	28	1	7	7	21	
3rd ID	620	25	595	5	119	5	1	3	15	10	
Test/Integr	665	27	638	1	638	27	1	7	7	20	
3-265 FLNG	193	8	185	1	185	8	2	5	5	3	
3 ACR	508	20	488	5	98	4	2	3	15	5	
SBCT3	720	26	694	1	694	26	2	8	8	18	
ARNG	23	1	22	1	22	1	3	1	1	0	
III Corps	932	40	892	5	178	8	3	3	15	25	
SBCT5	720	26	694	1	694	26	4	6	6	20	
SBCT6	720	29	691	1	691	29	3	8	8	21	
Depot RCT											119
Initial Cons											87
Yearly Cons											20.1
Totals	9499	413	9086	33	275	13		69	145	268	

Comparison of Major Cost Drivers

- **Alternative 1 Further Reduced Total Sparing by 20 Radio R/Ts (8 at DS & 12 at Depot Level)**
- **Alternative 2 Has Less Recurring Personnel**
  - **Dedicated Contractor Personnel Likely with Alternative 1 & Status Quo**
  - **Part Time Personnel Likely with Alternative 2**
- **Alternative 2 Recommendation Saves Taxpayer $4.47 million (149 x $30,000) in Future Replenishment Buys to Achieve the Same Ao**
  - **268 Less Total Spares at DS Level**
  - **119 More Spares to Cover Depot Repair Cycle Time**
  - **149 Spares Available Covers 8 Years Consumption**

Terminal Depot Level PBL Analysis

- **Terminal Buys Have 10 Year Warranty & Life Cycle is Expected to be 15 Years**
- **Contract Order & Ship Time (OST) Required to be 3 Days within CONUS from Order Placement**
  - **Contractor Covers Shipping Costs Both Ways**
  - **Contractor Provides Packaging with Pre-Paid Shipping**
- **Contractor or Govt Depot Repair have Longer OST & Requires Purchase of Depot Stock**
- **Ao Requirement of 97%**

Depot Level PBL Analysis Results

- **Presently No Retail Spares Needed Within CONUS to Achieve 97% Ao**
- **Government Spares Under Warranty is Minimal to Cover OCONUS & Out of Warranty Claims**
- **Contractor or Government Depot Repair Costs are Significantly Less Than Additional Spares Buy & Associated Inventory Holding Costs**
- **Since a Warranty Extension Saves Government Shipping Costs & Buying Many Spares to Achieve Ao, It is Likely to be Cost Effective**